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BRIEFER ARTICLES.

THE DISTRIBUTION AND HABITS OF SOME COMMON OAKS.

WHEN doing some work in Wisconsin last year for the Arnold Arboretum, I found that *Quercus ellipsoidalis* E. J. Hill was well represented in the woods of the southeastern part of that state. It was originally described from trees growing in the vicinity of Chicago. It had been identified by those studying the flora near Milwaukee, and is quite abundant on the hills of the Kettle Range. It had also been recognized as distinct by those unfamiliar with botanical works, as disclosed by the common name "pin oaks." I had not before heard this name applied to any except *Q. palustris* Moench. The original description mentioned the usual but not universal drooping of the lower branches, as is quite common in the pin oaks. When finding it in some new locality I have sometimes been at a loss to decide which of the two species it was till the acorns were in hand. As the branches often come low down, they are apt to die as the trees grow older, and, breaking off a short distance above their base, leave stubs along the trunk, so characteristic of the pin oaks. This was freely the case in most of the trees seen in Wisconsin, and doubtless explains the local name.

Quercus palustris was not seen in any of the localities visited, nor did I learn of its presence from those familiar with the flora. In 1846 Dr. LAPHAM mentions its occurrence at Milwaukee in a book containing "A list of plants which have not before been noticed as indigenous to Wisconsin."¹ It was mentioned again by him in a paper on the "Plants of Wisconsin."² Though no locality is specified, it is understood from a prefatory statement to have been "within thirty miles of Milwaukee." If rightly identified (and Dr. LAPHAM was a careful and competent observer), it would seem to have disappeared. Yet there is the possibility that the tree with drooping lower branches with stubs along the trunk, and finely divided leaves, going by the common name of pin oak, was the one he alluded to, since the common name is added to the botanical in both of the above citations.

That botanists have been bothered by some form ascribed to *Q. palustris* or *Q. coccinea* is apparent from a statement of Dr. GEORGE VASEY in an

¹ Wisconsin: its geography and topography, history, geology, mineralogy, etc. Milwaukee, 1846, p. 73.

² Proceedings of American Association for the Advancement of Science 1849:19.

article on "Our native oaks." "It (*Q. palustris*) is found in low and swampy ground, and in general appearance much resembles the scarlet oak (*Q. coccinea*), and perhaps may yet have to be considered a variety of that polymorphous species."³ Dr. VASEY resided for several years in northern Illinois, and could hardly have failed to see such forms of *Q. ellipsoidalis* as have led to its being confounded, by the common people at least, with the pin oak. But a typical scarlet oak is a tree of quite a different aspect from *Q. palustris*, and from its habitat would be more easily confounded with *Q. ellipsoidalis*. It is true that *Q. palustris* is commonly confined to low ground, though not always swampy, as along the margins of streams which have cut their beds deep down into the drift, leaving a high bank. Here the pin oak holds its place on ground that trends away from the stream and is comparatively dry. I have seen it along the Kankakee River move out of a swampy area to a bordering locality where the limestone was but a few inches below the surface. And although *Q. ellipsoidalis* commonly grows on dry or upland ground, it also occurs in lower, even wettish, localities, as by the borders of ponds and sloughs in low woods, becoming a near neighbor of the swamp white oak (*Q. platinoides*). Those seen in Wisconsin were on hills of till, or by the borders of lakes in the Kettle Range, or in soil of glacial drift. The least frequent of the biennial-fruited oaks associated with it seemed to be *Q. velutina*. *Q. coccinea* was quite common; *Q. rubra* the most abundant of all. In Illinois I have most frequently met with it in woods adjacent to streams not subject to overflow, the morainal hills being taken, when wooded, more by *Q. coccinea*, *Q. rubra*, *Q. velutina*, and *Q. imbricaria*, in prevalence somewhat in the order given.

It is therefore a matter of some doubt whether *Q. palustris* now occurs in Wisconsin. In Minnesota it is mentioned in UPHAM'S "Catalogue of the plants of Minnesota" on the authority of Dr. LAPHAM, the locality not being given; and on the authority of another collector as found in the region of the Upper Mississippi. I have not been able to get these statements verified. The pin oak of Minnesota may also be *Q. ellipsoidalis*. Professor SARGENT identifies this in specimens collected at the Falls of Minnehaha in 1878, and states that he himself first saw the species in 1882 at Brainard on the Red River of the North and at St. Paul.⁴ In his report on the forest trees of North America, tenth census, volume 9, *Q. palustris* is given for Wisconsin; but in his account of the tree in the eighth volume of the *Silva*, this state is omitted from its range, as well as in his more recently published *Manual of the trees of North America*. Both Wisconsin

³ The American Entomologist and Botanist 2: 376. 1870.

⁴ Silva of North America 14:50. 1902.

and Minnesota are rather far north for its range. The farthest north I have found it in Illinois is in the town of Niles, just north of Chicago. Nor can I find any record of its occurrence in the more northerly counties of the state, where, if occurring at all, it is evidently very scarce. Dr. FRIEDRICH BRENDDEL of Peoria, in an article on "The trees and shrubs of Illinois," says "The pin oak (*Q. palustris* Du Roi) I have never seen around Peoria, nor did, as I learn by letter, Mr. HALL in Menard County; it occurs in St. Clair and Marion Counties; in Wisconsin and Cook County (*vide* Mr. JACKSON)."⁵ The credit to Wisconsin is doubtless due to Dr. LAPHAM, already cited. South of Chicago this oak appears in the southern part of Cook County in the town of Thornton, extending sparingly up Thorn Creek for a short distance, where it grows in company with *Q. ellipsoidalis*. It is most abundant east of the village of Thornton, making a good part of a wood growing in a soil of sandy peat, patches of sphagnum being common under the trees. Eastward it is found in occasional spots and in similar soils, and in the clayey soils of swamps in Lake and Porter Counties, Indiana. It comes into the dune region of Lake Michigan north of the village of Porter, in a sandy humus soil similar to that near Thornton.

Southward from here in Indiana it increases in frequency and abundance. In eastern Illinois it reappears south of the Thorn Creek localities after one crosses the range of hills here forming the water-shed of Lake Michigan basin (the Valparasio moraine), and is frequent along the Kankakee River at Momence.

Whether *Q. ellipsoidalis* occurs south of the most northern counties of Indiana there is no evidence at hand to show. Some time spent in examining the flora in the vicinity of North Judson and English Lake in Stark County did not reveal its presence, though the pin or Spanish oak was common along the Kankakee River there. Specimens of oaks sent from Bluffton in the eastern part of the state, a short distance south of Fort Wayne, lacked this species, but contained *Q. palustris* and *Q. texana* Buckley.

It is evident from this survey that *Q. ellipsoidalis* replaces to a large extent in the north of the Middle West the more southerly *Q. palustris*. But it is usually with a different and drier habitat, and an adaptability to a wider range of conditions. The boundaries of the two overlap in southern Michigan, northern Indiana, northern Illinois, eastern-central Iowa, possibly in southern Wisconsin. It may also be of interest to add that the northern bounds of another biennial fruited oak, the shingle oak (*Q. imbricaria*) correspond quite generally with those of *Q. palustris*.—

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⁵ Illinois Agricultural Report 1859:596.